

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) An adapter for allowing communications between a vehicle control computer coupled to a vehicle communications network and a remote computer, the adapter comprising:

a first interface configured for operatively coupling to a first network segment of the vehicle communications network, the first network segment configured for communications according to a first protocol;

a second interface configured for operatively coupling to a second network segment of the vehicle communications network, the second network segment configured for communications according to a second protocol; and

a third ~~second~~ interface including a universal serial bus (USB) controller having a USB device port and a USB host port, the third ~~second~~ interface configured for operatively coupling to the remote computer via at least one of the USB device port and the USB host port;

wherein the vehicle control computer and the remote computer communicate via one of the first network segment through the vehicle communications network and the first and third ~~second~~ interfaces and the second network segment through the second and third interfaces.

2. (Original) The adapter of claim 1, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB host port of the universal serial bus controller.

3. (Original) The adapter of claim 2, wherein the remote computer comprises service tool software.

4. (Original) The adapter of claim 2, wherein the remote computer comprises vehicle diagnostic software.

5. (Original) The adapter of claim 1, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB device port of the universal serial bus controller.

6. (Original) The adapter of claim 5, wherein the remote computer comprises service tool software.

7. (Original) The adapter of claim 5, wherein the remote computer comprises vehicle diagnostic software.

8. (Original) The adapter of claim 1, wherein the USB host port of the universal serial bus controller is configured for coupling with a plurality of remote computers, each of the plurality of remote computers having a USB device port.

9. (Original) The adapter of claim 8, wherein at least one of the plurality of remote computers comprises vehicle diagnostic or service tool software.

10. (Currently Amended) The adapter of claim 1, wherein the first network segment of the vehicle communications network comprises a J1939 network segment, and wherein the first interface of the adapter is operatively coupled to the J1939 network segment.

11. (Currently Amended) The adapter of claim 10, wherein messages communicated via the J1939 network segment are made available via the third ~~second~~ interface.

12. (Original) The adapter of claim 11, wherein the remote computer is a personal digital assistant having a USB device port, the USB device port of the personal digital assistant is operatively coupled to the USB host port of the universal serial bus controller, and messages communicated via the J1939 network segment are further communicated to the personal digital assistant.

13. (Original) The adapter of claim 11, wherein the remote computer is a personal computer having a USB host port, the USB host port of the personal computer is operatively coupled to the USB device port of the universal serial bus controller, and messages communicated via the J1939 network segment are further communicated to the personal computer.

14. (Currently Amended) The adapter of claim 1, wherein the first network segment of the vehicle communications network comprises a J1587 network segment, and wherein the first interface of the adapter is operatively coupled to the J1587 network segment.

15. (Currently Amended) The adapter of claim 14, wherein messages communicated via the J1587 network segment are made available via the third ~~second~~ interface.

16. (Original) The adapter of claim 15, wherein the remote computer is a personal digital assistant having a USB device port, the USB device port of the personal digital assistant is operatively coupled to the USB host port of the universal serial bus controller, and messages communicated via the J1587 network segment are further communicated to the personal digital assistant.

17. (Original) The adapter of claim 15, wherein the remote computer is a personal computer having a USB host port, the USB host port of the personal computer is operatively coupled to the USB device port of the universal serial bus controller, and messages communicated via the J1587 network segment are further communicated to the personal computer.

18. (Currently Amended) The adapter of claim 1, the adapter further comprising a fourth ~~third~~ interface configured for operatively coupling to a second remote computer, wherein the fourth ~~third~~ interface comprises an RS-232 serial port.

19. (Original) The adapter of claim 18, wherein the second remote computer is a personal digital assistant having an RS-232 serial port, and wherein the RS-232 serial port of the personal digital assistant is operatively coupled to the RS-232 serial port of the adapter.

20. (Original) The adapter of claim 19, wherein the second remote computer comprises service tool software.

21. (Original) The adapter of claim 19, wherein the second remote computer comprises vehicle diagnostic software.

22. (Original) The adapter of claim 18, wherein the second remote computer is a personal computer having an RS-232 serial port, and wherein the RS-232 serial port of the personal computer is operatively coupled to the RS-232 serial port of the adapter.

23. (Original) The adapter of claim 22, wherein the second remote computer comprises service tool software.

24. (Original) The adapter of claim 22, wherein the second remote computer comprises vehicle diagnostic software.

25. (Original) The adapter of claim 1, wherein the universal serial bus controller further comprises a USB On-The-Go port.

26. (Original) The adapter of claim 25, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

27. (Original) The adapter of claim 25, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

28. (Currently Amended) An adapter for allowing communications between a vehicle control computer coupled to a J1939 network of a vehicle and a remote computer, the adapter comprising:

a first interface configured for operatively coupling to a J1939 network of a vehicle;

a second interface configured for operatively coupling to a second network of the vehicle, the second network configured for communications according to a protocol different from the J1939 network; and

a third ~~second~~ interface including a universal serial bus (USB) controller having a USB device port and a USB host port, the third ~~second~~ interface configured for operatively coupling to the remote computer via at least one of the USB device port and the USB host port;

wherein the vehicle control computer and the remote computer communicate via one of the J1939 network through ~~[[and]]~~ the first and third ~~second~~ interfaces and the second network through the second and third interfaces.

29. (Original) The adapter of claim 28, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB host port of the universal serial bus controller.

30. (Original) The adapter of claim 28, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB device port of the universal serial bus controller.

31. (Original) The adapter of claim 28, wherein the USB host port of the universal serial bus controller is configured for coupling with a plurality of remote computers, each of the plurality of remote computers having a USB device port.

32. (Currently Amended) The adapter of claim 28, the adapter further comprising a fourth ~~third~~ interface configured for operatively coupling to a second remote computer, wherein the fourth ~~third~~ interface comprises an RS-232 serial port.

33. (Original) The adapter of claim 28, wherein the universal serial bus controller further comprises a USB On-The-Go port.

34. (Original) The adapter of claim 33, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

35. (Original) The adapter of claim 33, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

36. (Currently Amended) An adapter for allowing communications between a vehicle control computer coupled to a J1587 network of a vehicle and a remote computer, the adapter comprising:

a first interface configured for operatively coupling to the J1587 network of a vehicle;

a second interface configured for operatively coupling to a second network of the vehicle, the second network configured for communications according to a protocol different from the J1587 network; and

a third ~~second~~ interface including a universal serial bus (USB) controller having a USB device port and a USB host port, the third ~~second~~ interface configured for operatively coupling to the remote computer via at least one of the USB device port and the USB host port;

wherein the vehicle control computer and the remote computer communicate via one of the J1587 network through ~~[[and]]~~ the first and third ~~second~~ interfaces and the second network through the second and third interfaces.

37. (Original) The adapter of claim 36, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB host port of the universal serial bus controller.

38. (Original) The adapter of claim 36, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB device port of the universal serial bus controller.

39. (Original) The adapter of claim 36, wherein the USB host port of the universal serial bus controller is configured for coupling with a plurality of remote computers, each of the plurality of remote computers having a USB device port.

40. (Currently Amended) The adapter of claim 36, the adapter further comprising a fourth ~~third~~ interface configured for operatively coupling to a second remote computer, wherein the fourth ~~third~~ interface comprises an RS-232 serial port.

41. (Original) The adapter of claim 36, wherein the universal serial bus controller further comprises a USB On-The-Go port.

42. (Original) The adapter of claim 41, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

43. (Original) The adapter of claim 41, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

44. (Currently Amended) An adapter for allowing communications between control computers of a vehicle and a remote computer, the adapter comprising:

a first interface configured for operatively coupling to a J1939 network segment of the vehicle;

a second interface configured for operatively coupling to a J1587 network segment of the vehicle; and

a third interface including a universal serial bus (USB) controller having a USB device port and a USB host port, the third interface configured for operatively coupling to the remote computer via at least one of the USB device port and the USB host port;

wherein at least one ~~each~~ control computer of the vehicle and the remote computer communicate via ~~one of~~ the J1939 network through ~~and~~ the first and third interfaces and at least another control computer of the vehicle and the remote computer communicate via the J1587 network through ~~and~~ the second and third interfaces.

45. (Original) The adapter of claim 44, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB host port of the universal serial bus controller.

46. (Original) The adapter of claim 44, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB device port of the universal serial bus controller.

47. (Original) The adapter of claim 44, wherein the USB host port of the universal serial bus controller is configured for coupling with a plurality of remote computers, each of the plurality of remote computers having a USB device port.

48. (Original) The adapter of claim 44, wherein the universal serial bus controller further comprises a USB On-The-Go port.

49. (Original) The adapter of claim 48, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

50. (Original) The adapter of claim 48, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

51. (Currently Amended) A method for allowing communications between a vehicle control computer operatively coupled to a communication network of a vehicle and a remote computer, the method comprising:

receiving a datum via one of a first interface and a second interface, the first interface operatively coupled to a first the communication network segment of the vehicle and configured for communication according to a first protocol, the second interface operatively coupled to a second network segment of the vehicle and configured for communication according to a second protocol;

transmitting the datum via a third second interface, the third second interface including a universal serial bus controller having a USB device port and a USB host port, the third second interface configured for operatively coupling to a remote computer via at least one of the USB device port and the USB host port;

wherein the first datum is received from the transmitted by the vehicle control computer operatively coupled to one of the first network segment and the second network segment, and wherein the first datum is transmitted to received by the remote computer.

52. (Original) The method of claim 51, wherein the datum is a network message, the network message comprising a destination address.

53. (Currently Amended) The method of claim 52, wherein the transmitting step comprises determining whether the network message is bound for the third second interface, and transmitting the network message via the third a-second interface only if the network message is bound for the third second interface.

54. (Currently Amended) The method of claim 53, wherein determining whether the network message is bound for the third ~~second~~ interface comprises reading the address and comparing it to an existing address.

55. (Currently Amended) The method of claim 52 wherein the transmitting step comprises transmitting the network message via the third ~~a second~~ interface irrespective of the destination address of the network message.

56. (Currently Amended) An adapter for allowing communications between a vehicle control computer operatively coupled to a vehicle communications network, the adapter comprising:

a first interface configured for operatively coupling to a first network segment of the vehicle communications network, the first network segment configured for communications according to a first protocol;

a second interface configured for operatively coupling to a second network segment of the vehicle communications network, the second network segment configured for communications according to a second protocol; and

a third ~~second~~ interface including a USB On-The-Go port, the third ~~second~~ interface configured for operatively coupling to the remote computer via the USB On-The-Go port;

wherein the vehicle control computer and the remote computer communicate via one of the first network segment through vehicle communications network and the first and third ~~second~~ interfaces and the second network segment through the second and third interfaces.

57. (Original) The adapter of claim 56, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the adapter.

58. (Original) The adapter of claim 57, wherein the remote computer comprises service tool software.

59. (Original) The adapter of claim 57, wherein the remote computer comprises vehicle diagnostic software.

60. (Original) The adapter of claim 56, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the adapter.

61. (Original) The adapter of claim 60, wherein the remote computer comprises service tool software.

62. (Original) The adapter of claim 60, wherein the remote computer comprises vehicle diagnostic software.

63. (Currently Amended) The adapter of claim 56, wherein the first network segment of the vehicle communications network comprises a J1939 network segment, and wherein the first interface of the adapter is operatively coupled to the J1939 network segment.

64. (Original) The adapter of claim 63, wherein messages communicated via the J1939 network segment are made available via the second interface.

65. (Original) The adapter of claim 64, wherein the remote computer is a personal digital assistant having a USB device port, the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the adapter, and messages communicated via the J1939 network segment are further communicated to the personal digital assistant.

66. (Original) The adapter of claim 64, wherein the remote computer is a personal computer having a USB host port, the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the adapter, and messages communicated via the J1939 network segment are further communicated to the personal computer.

67. (Currently Amended) The adapter of claim 56, wherein the first network segment of the vehicle communications network comprises a J1587 network segment, and wherein the first interface of the adapter is operatively coupled to the J1587 network segment.

68. (Original) The adapter of claim 67, wherein messages communicated via the J1587 network segment are made available via the second interface.

69. (Original) The adapter of claim 68, wherein the remote computer is a personal digital assistant having a USB device port, the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the adapter, and messages communicated via the J1587 network segment are further communicated to the personal digital assistant.

70. (Original) The adapter of claim 68, wherein the remote computer is a personal computer having a USB host port, the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the adapter, and messages communicated via the J1587 network segment are further communicated to the personal computer.

71. (Currently Amended) The adapter of claim 56, the adapter further comprising a fourth ~~third~~ interface configured for operatively coupling to a second remote computer, wherein the fourth ~~third~~ interface comprises an RS-232 serial port.

72. (Original) The adapter of claim 71, wherein the second remote computer is a personal digital assistant having an RS-232 serial port, and wherein the RS-232 serial port of the personal digital assistant is operatively coupled to the RS-232 serial port of the adapter.

73. (Original) The adapter of claim 72, wherein the second remote computer comprises service tool software.

74. (Original) The adapter of claim 72, wherein the second remote computer vehicle comprises vehicle diagnostic software.

75. (Original) The adapter of claim 71, wherein the second remote computer is a personal computer having an RS-232 serial port, and wherein the RS-232 serial port of the personal computer is operatively coupled to the RS-232 serial port of the adapter.

76. (Original) The adapter of claim 75, wherein the second remote computer comprises service tool software.

77. (Original) The adapter of claim 75, wherein the second remote computer vehicle comprises vehicle diagnostic software.

78. (Currently Amended) An adapter for allowing communications between control computers of a vehicle and a remote computer, the adapter comprising:

a first interface configured for operatively coupling to a J1939 network segment of the vehicle;

a second interface configured for operatively coupling to a J1587 network segment of the vehicle; and

a third interface including a USB On-The-Go port, the third interface configured for operatively coupling to the remote computer via the USB On-The-Go port;

wherein at least one ~~[[each]]~~ control computer of the vehicle and the remote computer communicate via ~~one of the J1939 network segment through~~ ~~[[and]]~~ the first and third interfaces and at least another control computer of the vehicle and the remote computer communicate via the J1587 network segment through ~~[[and]]~~ the second and third interfaces.

79. (Original) The adapter of claim 78, wherein the remote computer is a personal digital assistant or personal computer having a USB On-The-Go port, and wherein the USB On-The-Go port of the remote computer is operatively coupled to the USB On-The-Go port of the adapter.

80. (Original) The adapter of claim 79, wherein the remote computer comprises service tool software.

81. (Original) The adapter of claim 79, wherein the remote computer comprises vehicle diagnostic software.

82. (Original) The adapter of claim 78, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the adapter.

83. (Original) The adapter of claim 82, wherein the remote computer comprises service tool software.

84. (Original) The adapter of claim 82, wherein the remote computer comprises vehicle diagnostic software.

85. (Original) The adapter of claim 78, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the adapter.

86. (Original) The adapter of claim 85, wherein the remote computer comprises service tool software.

87. (Original) The adapter of claim 85, wherein the remote computer comprises vehicle diagnostic software.

88. (Original) The adapter of claim 78, the adapter further comprising a fourth interface configured for operatively coupling to a second remote computer, wherein the fourth interface comprises an RS-232 serial port.

89. (Original) The adapter of claim 88, wherein the second remote computer is a personal digital assistant having an RS-232 serial port, and wherein the RS-232 serial port of the personal digital assistant is operatively coupled to the RS-232 serial port of the adapter.

90. (Original) The adapter of claim 89, wherein the second remote computer comprises service tool software.

91. (Original) The adapter of claim 89, wherein the second remote computer comprises vehicle diagnostic software.

92. (Original) The adapter of claim 88, wherein the second remote computer is a personal computer having an RS-232 serial port, and wherein the RS-232 serial port of the personal computer is operatively coupled to the RS-232 serial port of the adapter.

93. (Original) The adapter of claim 92, wherein the second remote computer comprises service tool software.

94. (Original) The adapter of claim 92, wherein the second remote computer comprises vehicle diagnostic software.

95. (Original) The adapter of claim 88, wherein the remote computer is the second remote computer.